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question whether the reserve material contained in the endosperm of amyliferous seeds is exclusively digested by enzymes secreted during germination, or whether the endosperm cells renew their vital activity and themselves dissolve their own food material."

The endosperms of maize, wheat, rye, and barley were tested. The seeds were allowed to soak 48 hours before removal of the embryo and scutellum in some instances, and in the other tests no statement is made on this point. No controls are mentioned; in fact the experimental data are so meager that the reader is compelled to reject the results simply because the author leaves him too ignorant to judge. In the digestion tests no controls are mentioned. The simple statement that aseptic conditions were maintained is altogether insufficient. We read that chloroform water was used, but whether it was saturated or half saturated or something else the reader cannot know. The general trend of the conclusions is that all of the endosperms mentioned are more or less capable of self-digestion, and that such activity is independent of vitality. The endosperm of rye is pronounced dead, but in maize, barley, and wheat there is more or less vitality in some of the amyliferous cells.

STOWARD[6] has found that the pure endosperms of Hordeum and Zea under appropriate conditions manifest a gaseous exchange of respiratory character. He also regards similar behavior on the part of the aleurone layer as strengthening the evidence that the cells of that tissue possess vitality. The paper is presumably an initial effort, because (*a*) the introduction as such is unnecessarily tedious, and as a digest of the literature is deficient in so far as a judicial analysis is concerned, and is not as comprehensive as others already published; (*b*) after about ten pages of tabulated data a new subject is at once begun with no discussion or consideration of the significance of the experimental results recorded. This *pot-pourri* style of composition is more or less reflected in the impression one receives of the author's tendency to think of several matters without analysis and correlation. On the other hand, all the experimental procedure is very carefully described and the reader can analyze the results. In spite of the fact that the respiration tubes were "tarred" instead of tared, one is inclined to accept the results as reliable and the conclusions as sound.—RAYMOND H. POND.

Plant diseases.—The last annual report (21st) of the Agricultural Experiment Station of the University of Nebraska, issued January 29, 1908, contains the following papers of interest in reference to plant diseases.

POOL[7] discusses several diseases of tomatoes. Black rot, due to *Alternaria fasciculata* (C. & E.) Jones & Grout, occurs on the ripe fruit at the blossom end. The cavities within the diseased tissue are lined with the fluffy mycelium of the fungus. It was isolated and inoculations were made upon both ripe and green fruit. Five days after inoculation the rotted area of the ripe fruit was 1.2^{cm} in diameter. No infection occurred in the green fruit. Culture characteristics are discussed. Rhizoctonia on the tomato is also discussed, the disease being marked by a chocolate-colored, wrinkled epidermis. The fungus penetrates the cells in all directions, and no conidia are formed. It was isolated and tomatoes were inoculated, resulting in their complete decay in two weeks, both ripe and green fruit. The ripe rot due to *Colletotrichum lycopersici* was studied. The fungus was isolated and inoculations were made, producing four days after infection a diseased area 0.6^{cm} in diameter on either ripe or green fruit. Fusarium of undetermined species and also *F. Solani* Mart. were isolated, used in inoculations, and the culture characters determined.

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[6] STOWARD, FREDERICK, On endospermic respiration in certain seeds. Annals of Botany **22**:415–448. 1908.

[7] POOL, V. W., Some tomato fruit rots during 1907.

Miss WALKER[8] discusses and describes a form of Sphaeropsis differing from the ordinary form principally in the size of the spore, the size and thickness of pycnidium, and the absence of the ostiole. The new form seems to be more vigorous as a rot-producer that the old one. Inoculated into apples in every case it produced the characteristic black rot. The author suggests that possibly the variation in size of the spore may be due to the nature of the fruit upon which it is growing.

HEALD[9] briefly describes the various types of barley smuts, with notes on experiments as to the best mode of treatment for their prevention. The following treatments were used: formalin steep, modified formalin steep, hot water treatment, corrosive sublimate steep, copper sulfate steep. The percentage of germination was lessened by all the treatments except the hot water, being reduced 40 per cent. by formalin 1/10, and 70 per cent. by 1/15. The author recommends as the formalin steep one pint to 20–25 gallons of water.

WOLF[10] found *Pestalozzia uvicola* on ripe grapes. It was isolated in pure culture and inoculations made upon the grape, resulting in numerous pustules after proper incubation period. Sections of these pustules showed the characteristic spore, but, contrary to the usual mode of Pestalozzia, the spores were borne in what the author regards as well-defined pycnidia, which structure would be entirely out of accord with the genus or with any of the Melanconiaceae. It is unfortunate that the drawing (p. 71) leads one to infer that the spores are not borne in the true pycnidium, as the author describes, but rather in the cavity resulting from hypertrophy of the surrounding host tissues.—F. L. STEVENS.

Mold of maple syrup.—This mold, frequently observed during the past few years, has been ascertained by HEALD and POOL[11] to be *Torula saccharina* and was grown in pure culture on media of varying composition. They conclude that the concentration of the sugar solution in which the fungus was growing

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[8] WALKER, LEVA BELL, A new form of Sphaeropsis on apples.

[9] HEALD, F. D., Seed treatment for the smuts of winter barley.

[10] WOLF, F. A., A rot of grapes due to *Pestalozzia uvicola* Spegaz.

[11] HEALD, F. D., AND POOL, V. W., The mold of maple syrup. 21st Ann. Rep. Univ. Neb. Agric. Exp. Sta. 54. 1908.